

Homeowner Engagement

Hannah Thompson-Welch
Wildfire Mitigation Specialist
hannah.thompson@ncagr.gov
(919) 210-7037



Wildland Urban Interface

Wildland Urban Interface (WUI) is the area where structures and other human development meet or intermingle with undeveloped wildland, forest or vegetative fuels.



Homes can withstand

When a house survives a forest fire virtually undamaged, that is often portrayed as a “miracle,” but in fact it’s almost always a direct result of the house’s construction and its immediate surroundings, Cohen said. “The key to reducing WUI home fire losses is to **reduce home ignitability**,” he wrote.



Ignition-Resistant Homes



A screenshot of a demonstration video by the Insurance Institute for Business and Home Safety shows the effects of embers on a traditionally-built home compared to one designed for fire resistance, 2019.

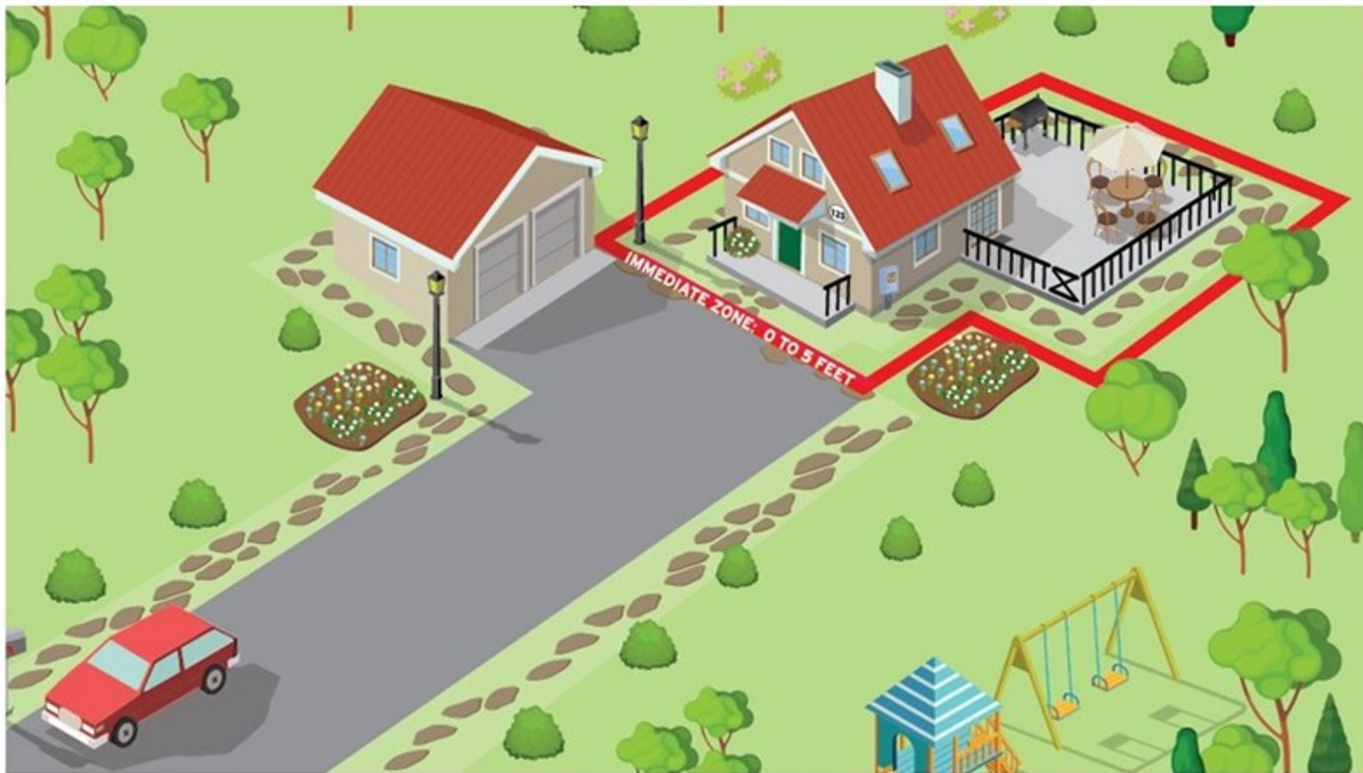
The majority of homes lost to wildfire are first ignited by embers and small flames. **By reducing the susceptibility of the home and the area immediately around the home (also called the “home ignition zone”), the chances of a home surviving a wildfire are greatly increased.**

Insurance Institute for Business and Home Safety
Research Center Ember Storm Test Highlights



Home Ignition Zone

The home and the area 0-5' from the furthest attached exterior point of the home; defined as a non-combustible area. Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. **START WITH THE HOUSE ITSELF** then move into the landscaping section of the Immediate Zone.

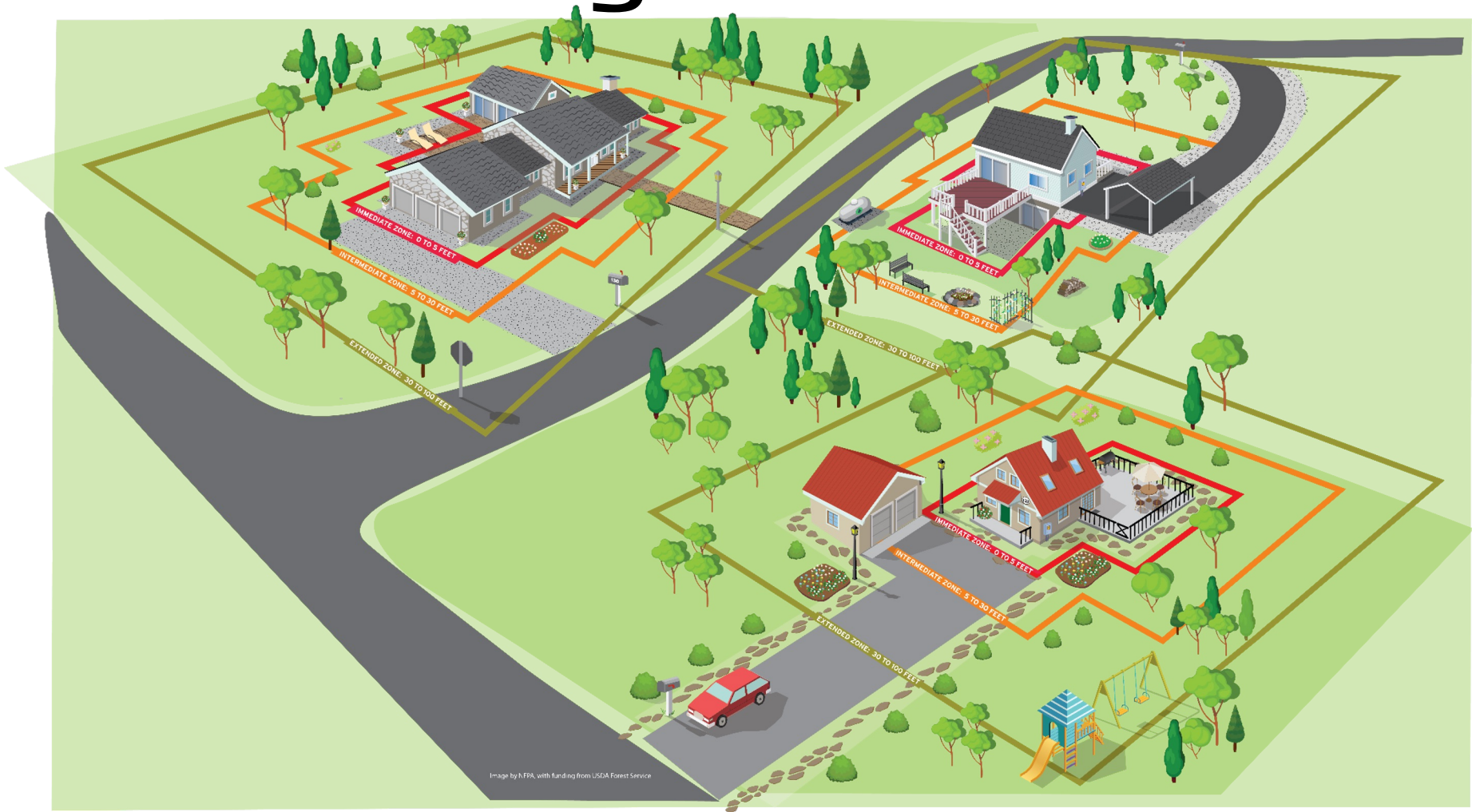


In the Immediate Zone (0-5 feet)

- **Clean roofs and gutters** of dead leaves, debris and pine needles that could catch embers.
- **Replace or repair any loose or missing shingles** or roof tiles to prevent ember penetration.
- Reduce embers that could pass through vents in the eaves **by installing 1/8- inch metal mesh screening.**
- **Clean debris from exterior attic vents** and **install 1/8-inch metal mesh screening** to reduce embers.
- **Repair or replace damaged or loose window screens and any broken windows**
- Screen or **box-in areas below patios and decks with wire mesh** to prevent debris and combustible materials from accumulating.
- **Move any flammable material away from wall exteriors** – mulch, flammable plants, leaves and needles, firewood piles – anything that can burn. **Remove anything stored underneath decks or porches.**

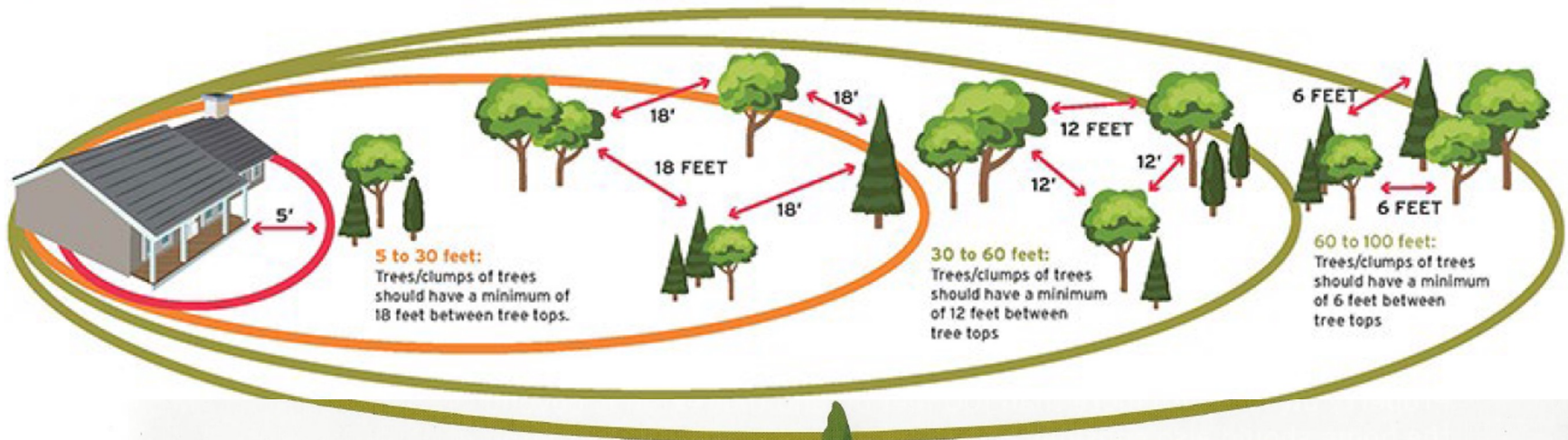


Home Ignition Zone

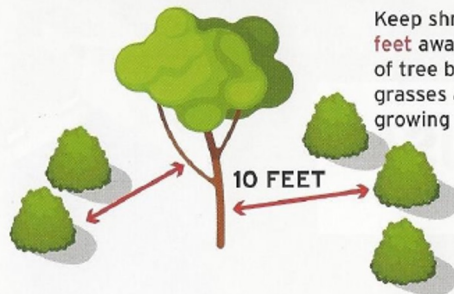


Intermediate & Extended Zones

TREE SPACING



TREE PRUNING



Keep shrubs a minimum of 10 feet away from the lower edge of tree branches; and remove grasses and other vegetation growing underneath tree limbs



60% height of tree retained as canopy

For mature/tall trees, prune lower branches up 6 to 10 feet from the ground



For shorter trees, prune lower branches up from the ground, but do not exceed 1/3 of the tree's overall height

1/3 TREE HEIGHT



FIREWISE USA®

Residents reducing wildfire risks

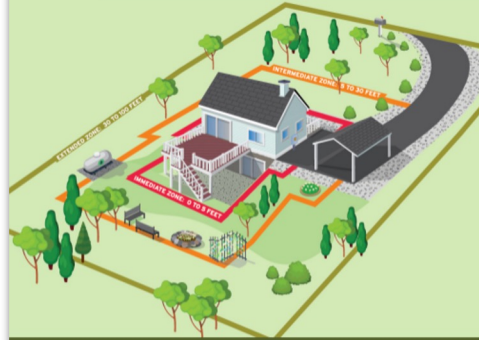
The national Firewise USA® recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the ignition resistance of their homes and community and to reduce wildfire risks at the local level. Any community that meets a set of voluntary criteria on an annual basis and retains an “In Good Standing Status” may identify itself as being a Firewise® Site.

Resources to help with preparedness



Fire-Resistant Landscaping in North Carolina

REDUCING WILDFIRE RISKS IN THE HOME IGNITION ZONE



Projects and tasks that can increase a home's potential survivability in a wildfire.

WILDFIRE RESEARCH FACT SHEET

Attic and Crawl Space Vents

Wildblown embers can enter attics and crawl spaces through vents.

INSTALLING THE RECOMMENDED MESH SCREENING AND ELIMINATING STORAGE IS CRITICAL TO REDUCING BUILDING IGNITIONS DURING A WILDFIRE.

VENTS IN ATTICS AND CRAWL SPACES
Attic and crawl space vents, and other openings on the vertical wall of a home, serve important functions, including providing ventilation to remove unwanted moisture from these typically unoccupied spaces and oxygen for gas appliances such as hot water heaters and furnaces. Wind-blown embers are the principal cause of building ignition and can readily enter these spaces, which are often hot and dry. Providing air for ventilation, while also keeping out embers can present a dilemma. Dry materials are more easily ignited by embers, so limiting the entry of embers into attic spaces is critical. Adding to the problem are the combustible materials we tend to store in these spaces (e.g., cardboard boxes, old clothes and other combustible materials) because embers accumulate against them and they can be easily ignited.

HOW VENTS FUNCTION
Ventilated attic spaces have openings in two locations. Inlet air comes from vents located in the under-eave area at the edge of your roof. Exiting air leaves through vents located on the roof or at the gable ends of your home. If your home is built over a crawl space, you will typically have vents on each face of your home to provide cross-ventilation. Experiments conducted at the IBHS Research Center demonstrated that regardless of whether a vent had an inlet or outlet function, when wind blows against its face, it is an inlet vent. Therefore, any vented opening on your home should be able to resist the entry of embers. Unvented attic and crawlspace designs are available for some areas of the country. These designs are more easily implemented with new construction. Check with local building code officials to see if this is an option where you live.

USE MESH SCREENING TO REDUCE EMBER ENTRY INTO VENTS
Building codes require vent openings to be covered by corrosion resistant metal screens, which are typically 1/8-inch to keep out rodents. However, research shows that embers can pass through 1/4-inch mesh and ignite combustible materials, particularly smaller materials such as saw dust. Embers also can enter smaller screening, such as 1/16-inch, but cannot easily ignite even the finer fuels. However, this size screening is more easily plugged with wind-blown debris and is easily painted over if you are not careful when re-painting your house. Installing 1/8-inch mesh screening is suggested in wildfire prone areas, as it effectively minimizes the entry of embers. It's important to note that 1/8-inch screening only minimizes the size and number of embers and does not eliminate them entirely, making it very important to reduce what's stored in the attic and crawl space.

BEST CHOICES FOR VENTS TO RESIST EMBER ENTRY:

- For under-eave inlet vents, opt for a soffited eave design. IBHS research demonstrates that gable end vents and other vent openings are vulnerable to wind-blown embers when the face of the vent is perpendicular to the wind flow, while embers are less likely to pass through vents with a face that is parallel to the wind flow. Therefore, soffited eave construction is preferred to open eave.
- For outlet vents, opt for a ridge that is rated to resist wind driven rain. These vents have an external baffle at the vent inlet. Vents that have been approved for use by the California Office of the State Fire Marshal.
- Turbine vents also help keep embers out, but you should attach a piece of 1/8-inch mesh to the bottom of the roof sheathing at the opening for the vent.

FIREWISE USA®
NATIONAL WILDFIRE RESISTANCE



Retrofitting a Home for Wildfire Resistance Costs and Considerations

Spring 2024

Co-Authors:
Kimiko Barrett, Ph.D.
Stephen L. Quarles, Ph.D.



Ready, Set, Go! Wildland Fire Preparedness for Farmers & Ranchers

It is not a question of if, but **when** the next major wildland fire will occur. As wildland fires continue to intensify, it is important to remember the specific considerations facing farmers and ranchers. Wildland fire is becoming a year-round reality. Many of the areas at greatest risk could be your ranch or farm property.

Agricultural properties that border non-urban areas often have unique challenges, making them more difficult to protect from a wildland fire. This Ready, Set, Go! Program Farmers & Ranchers brochure is designed to help you better understand wildland fire mitigation efforts to best protect your household, livestock, and livelihood.

Defensible Space: Increases your safety and reduces risk of fire damage to your property

Defensible space is the area around your home in which vegetation, debris, and other combustible fuels have been removed to slow the spread of fire to and from the home. The areas where human development meet or mix with natural vegetation is called the wildland-urban interface (WUI). Creating defensible space in these areas can reduce the risk of fire damage to structures and allow space for firefighting operations.

Homeowners should consider landscaping plans that include non-combustible materials or fire-resistant plants and conduct regular maintenance to create and maintain defensible space around their home and outbuildings. Special consideration should be given to wind-driven embers which can travel up to a mile or more ahead of the flame front. Consider areas where embers can land by looking over your home and outbuildings for cracks, openings, vents, and other areas where an ember could enter the space.

Farm and ranch properties may require very large areas of defensible space due to the surrounding vegetation and topography that may be part of your property. Agricultural assets such as feed, packing boxes, mulch, and fuel supplies are particularly susceptible to flames and wind-driven embers. Livestock and equipment are also at risk. As a result, you must carefully assess your property.

Unmanaged vegetation between and around homes, farms, or livestock structures increases the risk of wildland fire spreading. Pre-fire planning, fuel management and sufficient fuel breaks allow firefighters the space they need to fight wildland fires.



My Personal Wildland Fire ACTION GUIDE



our local fire
rent today!

and community
you can take to prepare!



10th Edition

Community Wildfire Mitigation Best Practices

Engagement Best Practices

- Making First Contact
- Seek opportunities for one-on-one interaction with landowners and property managers who have authority to reduce risk.

Community Wildfire Mitigation Best Practices - Engagement

Passive Communication

- Second-Hand
 - Brochures, News Releases, Articles, Websites
- Not as effective at moving people to action, but helps point people to resources
- Good for a broader audience

Active Communication

- Face-to-Face Engagement
- Two-way Communication based on Questions and Answers
- Both parties are highly involved and both come away with a better understanding of the issues discussed
- Leads to Action

NC Fuels Removal Program



A program that reduces wildfire risk by removing roadside debris piled by residents in communities within North Carolina.

- 12 Sites Selected in 2025

Anatomy of a Fuels Reduction Program Pile. Photograph credit: Justin Query

<https://www.ncagr.gov/divisions/nc-forest-service/resist-wildfire-north-carolina/fuels-removal-program>





Hannah Thompson-Welch
Wildfire Mitigation Specialist
hannah.thompson@ncagr.gov
(919) 210-7037